

## Engineering Economic Analysis

- Investment proposal are single projects or opportunities that are being considered as investment possibilities.
  - $m$  = Investment proposal (projects A, B, C...) and we can form  $2^m$  to get the alternatives, for Example, if there 4 investment proposal, we can form 16 investment alternatives ( $2^4=16$ ).
  - Contingent: one proposal cannot be selected because it is dependent on another's alternatives.
  - Mutually exclusive: if there are two proposals A, B are alternatives and at most one can be selected.
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### Ex.1

Two alternatives (A,B) are available for investment; list all possible combinations of proposals.

### Solution

$$2^m = 2^2 = 4 \text{ alternatives}$$

Alt	A	B
1	0	0
2	1	0
3	0	1
4	1	1

## Economic Analysis

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- **Ex.2(problem 8 / 29)**

Four proposals (A, B, C and D) are available for investment, proposals A and C cannot both be accepted, proposal B is contingent upon the acceptance of either proposal C or D, and proposal A is contingent on D. list all possible combinations of proposals and clearly show which are feasible.

### Solution

- $2^4 = 16$  alternatives

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	A	B	C	D	
1	0	0	0	0	ACCEPTABLE
2	0	0	0	1	ACCEPTABLE
3	0	0	1	0	ACCEPTABLE
4	0	0	1	1	ACCEPTABLE
5	0	1	0	0	B CONTINGENT ON C&D
6	0	1	0	1	ACCEPTABLE
7	0	1	1	0	ACCEPTABLE
8	0	1	1	1	ACCEPTABLE
9	1	0	0	0	A CONTINGENT ON D
10	1	0	0	1	ACCEPTABLE
11	1	0	1	0	NOT BOTH A AND C
12	1	0	1	1	NOT BOTH A AND C
13	1	1	0	0	B CONTINGENT ON C&D
14	1	1	0	1	ACCEPTABLE
15	1	1	1	0	NOT BOTH A AND C
16	1	1	1	1	NOT BOTH A AND C

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